

NEW WORLD POLYCTENIDAE (Hemiptera), WITH SPECIAL REFERENCE TO VENEZUELAN SPECIES

by

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ABSTRACT

There are seven species of the polyctenid genus *Hesperoctenes* which occur in Venezuela. Six of these species are reported in this paper. *H. longiceps* (Waterhouse) is redescribed. Data on distribution and hosts and a key to the 15 species of the genus *Hesperoctenes* are given.

INTRODUCTION

The family Polyctenidae in the New World is believed to be represented by only one genus, *Hesperoctenes*,² in contrast to four genera found in the Old World (Ferris and Usinger, 1939; Usinger, 1949, and Maa, 1964). In the genus *Hesperoctenes*, 16 species have been described. However, except for *H. fumarius* and *H. setosus* only a few specimens of each species are known. Also, the host relationships and distribution patterns of each species are not yet clearly understood.

Personnel of the Smithsonian Venezuelan Project collected over 200 specimens of *Hesperoctenes*. This large volume of material allows a better understanding of the host-parasite relationships of the New World Polyctenidae. In this paper I have presented host-parasite data, a redescription of *H. longiceps*, and a revised key to the species of *Hesperoctenes*. This paper is based on material collected by personnel of the Smithsonian Venezuelan Project (SVP).

I am greatly indebted to the late professor R. L. Usinger for allowing me to study this material and for the many helpful suggestions he gave me. I wish to acknowledge the help of Dr. C. O. Handley, Jr. (Smithsonian Institution, Washington, D. C.) and Dr. V. J. Tipton (Department of Zoology, Brigham Young University, Provo, Utah) who were responsible for organiz-

ing and carrying out the Venezuelan Project. Dr. R. L. Wenzel (Field Museum of Natural History, Chicago, Ill.) has also been generous with his help.

All of the Venezuelan specimens were collected by M. D. Tuttle, A. L. Tuttle, and F. Harder, except some specimens from Sucre and Monagas were collected by N. E. Peterson, R. B. Peacock, and D. B. Peacock.

Hesperoctenes longiceps (Waterhouse)

Polyctenes longiceps Waterhouse, 1880:319.—
Speiser, 1904:376.— 1909:272.

Hesperoctenes longiceps, Horvath, 1911:251.—
Costa Lima, 1920:69-70.— Jordan, 1922:214-
15.— Ferris and Usinger, 1939:22.— Usinger,
1946:14.— Ronderos, 1959:180.— 1962:71.

Parahesperoctenes hechti, Hoffman and Vargas,
1947:219-28.

REDESCRIPTION

MALE: *Head* about 0.82 mm long; distinctly longer, including labrum, than width posteriorly, 34:30. Labrum three times as long at middle as at sides, 6:2. Clypeus with about 25 bristles on middle of posterior half of disk, with single row of bristles just outside of suture, posteriorly continuing to basal group of about 20 bristles;

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²A. Hoffman and L. Vargas (1947) described another genus, *Parahesperoctenes* from Venezuela, based on a single female. Their main generic characters differentiating *Parahesperoctenes* from *Hesperoctenes* were two genal combs and two longitudinal combs on the second antennal segment. I believe that their specimen was *H. longiceps* in the process of molting from the last instar to the adult, as stated by Ronderos (1962a). My reasons are as follows: (a) as stated by Hoffman and Vargas, there was a doubling of the genal combs and longitudinal combs of the second antennal segment; (b) from the illustrations, the following are apparently double structures: occipital comb, long erect bristles of mid and hind femora, long erect bristles of mid and hind tibiae, mid and hind tarsi (see their Fig. 1 and 4), and short and stout bristles of prosternal region. From this evidence, most of the significant characters are doubled, suggesting that the skin of the last instar nymph might still be with the specimen. Of course, if additional specimens were found with doubling of bristles and ctenidia this conclusion would have to be reexamined. As for the probable identity of the species, the head is distinctly longer than broad and the second antennal segment is longer than the third or fourth (these are key characters to *H. longiceps*).

discolateral areas with about 55 bristles in each; sublateral setiferous areas with about 12 bristles in each; genal combs roundly angular anterolaterally. Hypostomal region with about nine pairs of fine bristles in addition to pair of prominent bristles, naked at posterior margin. Antennae about 1 mm long; proportion of segments, 6:12:11:11; first segment with about 12 short bristles anteriorly, with several slender bristles on anterior and posterior margins; teeth on comb of second segment short and stout, about one-half as long as occipital comb. Rostrum 0.2 mm long; proportion of segments, 5:5:7. *Thorax*. Pronotum 1 mm wide; more than one-half again as wide as long, 40:25; disk covered with rather sparsely placed bristles; two pairs of long bristles posterolaterally, longest bristles much longer than first antennal segment. Prosternum less than one-half again as long as wide, 17:12; anterior margin with 7-8 very stout bristles on either side, with slender bristles at middle; with one to three rows of long and slender bristles just behind anterior margin; posterior disk with about 40 small scattered bristles. Hemelytral pads distinctly longer than wide, 25:20; inner anterior area naked. Metasternum with bristles except at middle. Metapleura beneath with 8 very stout bristles arranged in two or three rows. Front femora with row of 6 stout bristles on anterior margin; about one-half again as long as greatest width, 20:13. Middle and hind femora with long erect bristles, 0.2 mm long. Middle tibiae with 4 long, erect bristles, longest ones 0.4 mm long and much longer than second antennal segment. Hind tibiae with 3 long erect bristles, as long as on middle tibiae.

FEMALE.—*Head* about 0.7 mm long; distinctly longer, including labrum, than width posteriorly, 32:27. Labrum three times as long at middle as at sides, 6:2; clypeus with about 20 scattered bristles on middle of posterior half of disk, with single row of bristles just outside of about 12 bristles; discolateral areas with about 55 bristles in each; sublateral setiferous area with about 12 bristles in each; genal combs roundly angular anterolaterally. Hypostomal region with about seven pairs of fine bristles in addition to pair of prominent bristles, naked at posterior margin. Antennae about 1 mm long; proportion of segments, 6:12:11:11; first segment with about 12 short, stout bristles anteriorly, with several slender bristles on anterior and posterior margins; teeth on comb of second segment short and stout, about one-half as long as occipital combs; third segment with long bristles, as long as first antennal segment.

Rostrum 0.2 mm long; proportion of segments, 5:5:7. *Thorax*. Pronotum 0.98 mm wide; more than one-half again as wide as long, 37:23; the disk covered with rather sparsely placed bristles; two pairs of long bristles posteriorly, longest bristles much longer than first antennal segment. Prosternum one-half again as long as wide, 18:12; anterior margin with 6-8 very stout bristles on either side, with slender bristles at middle; with one or two rows of long and slender bristles just behind anterior margin; posterior disk with about 40 small scattered bristles. Hemelytral pads distinctly longer than wide, 25:20; inner anterior area naked. Metasternum with bristles except at middle. Metapleura beneath with 8 very stout bristles arranged in two or three rows. Front femora with row of 6 stout bristles on anterior margin; about one-half again as long as greatest width, 18:13. Middle and hind femora with long erect bristles, 0.2 mm long. Middle tibiae with 4 long erect bristles, longest ones 0.4 mm long and much longer than second antennal segment. Hind tibiae with 3 long, erect bristles, as long as on middle tibiae.

MALE.—(slide mounted) holotype, length 3.25 mm, width (pronotum) 1 mm, (abdomen) 0.9 mm; female (slide mounted), length 3.3 mm, width (pronotum) 0.98 mm, (abdomen) 1 mm.

Redescribed from the male holotype, Guatemala, kindly sent from the British Museum. The female was described from the specimen taken 19 km NW Urama, Yaraeny, Venezuela, 19-III-1966 (M.D. Tuttle and A.L. Tuttle), ex *Eumops auripendulus* (SVP 6861).

H. longiceps was originally described by Waterhouse (1880). He stated, "Two specimens found by my colleague, Mr. Oldfield Thomas, on a bat, *Mollossus abrasus* Temminck." Jordan (1922) stated, "I have seen only ♀♀" and "In Mus. Brit. (sic) from Cajabán, Guatemala; three ♀♀ and one ♀ nymph." However, Ferris and Usinger (1939) stated, "A single nymph, Guatemala, British Museum, 1880-120. The accompanying drawing from the unique male type in the British Museum is by W. E. China." Their statement agrees with the statement by Waterhouse (1880). Apparently, the British Museum has the male holotype and a nymph paratype, in addition to one male taken in December 1933 by L. H. Dunn in Panama City. Jordan's specimens could not be located in the British Museum.

The key character used by Ferris and Usinger (1939) for *longiceps*, i.e. posterior pleurites beneath with a single row of 6 stout bristles, turned out to be incorrect. The holotype apparently has two or three rows of 8

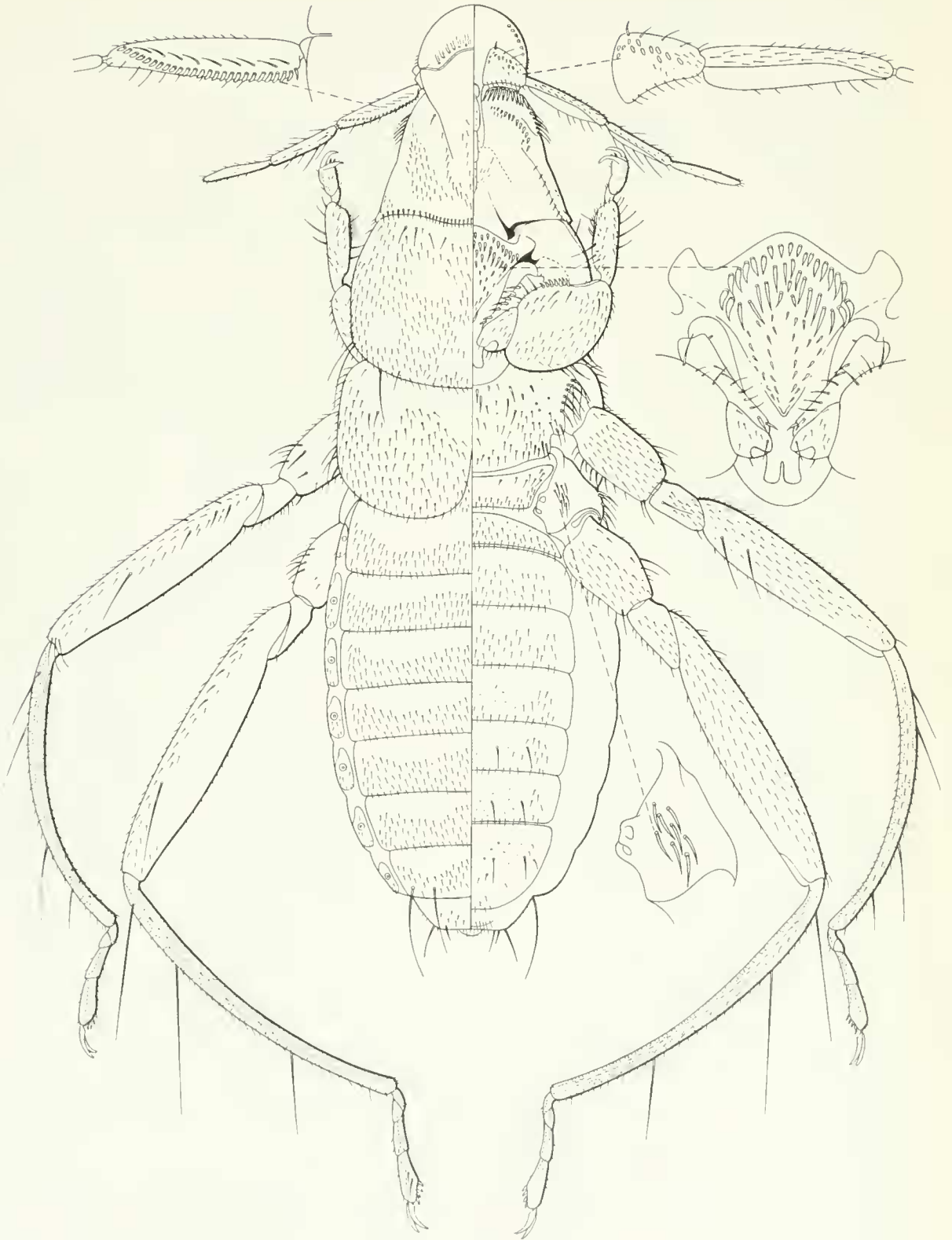


Fig. 1. *Hesperoctenes longiceps* (Waterhouse), female (Celeste Green, original).

bristles on the posterior pleurites. Also the measurement given by them was not accurate; the length of the holotype is 3.25 mm, not 4.3 mm.

VENEZUELAN RECORDS

Three females ex *Eumops auripendulus* (SVP 6861, 6862). Yaracuy. 19 km NW Urama, 25 m elev., 9-III-1966; 8 females, 1 male ex *Eumops glaucinus* (SVP 26994, 27862, 27866, 27869, 28369), T. F. Amazonas, Tamanaco, 6 km NE San Juan, Manapiare, 155 m elev., 17-23-VII-1967; 1 female ex *Molossus ater* (probable contamination) (SVP 28770), same data as above.

Hesperoctenes hermsi Ferris and Usinger

VENEZUELAN RECORDS

Two females, 1 male, 1 nymph ex *Tadarida gracilis* (SVP 6344, 6349, 6355, 6360), Apure, Río Cinaruco, 41 km NW Pto. Paez 76 m elev., 21-I-1966; 1 female ex *Eumops glaucinus* (SVP 27869), T. F. Amazonas, Tamanaco, 6 km NE San Juan, Manapiare, 155 m elev., 19-VII-1967.

Hesperoctenes cartus Jordan

VENEZUELAN RECORDS

One female, 4 nymphs ex *Molossops planirostris*

SVP 27859, 27886, 27893, 27895, 27925), T. F. Amazonas, Tamanaco, 6 km NE San Juan, Manapiare, 145-155 m elev., 19-VII-1967. Also 1 female, 1 nymph ex *Molossops planirostris* (Tipton 6589), Panama Canal Zone, Corozal, 22-XI-1960.

Hesperoctenes setosus Jordan

VENEZUELAN RECORDS

Six females, 2 males, 6 nymphs ex *Tadarida gracilis* from three localities: (SVP 6448) Apure, Río Cinaruco, 41 km NW Pto. Paez, 76 m elev., 25-I-1966; (SVP 6604, 6610, 6618, 6620, 6624) T. F. Amazonas, Río Orinoco, Boca Mavaca, 68 km SE Esmeralda, 185 m elev., 14-II-1966; (SVP 6648, 6652, 6653, 6659, 6665, 6666, 6667) same locality but 16-II-1966; (SVP 15723) T. F. Amazonas, mouth of Río Huachamacari in a valley at the foot of Cerro Huachamacari in the general area of Belen and Río Cuncunuma, 150 m elev., 13-I-1967; 5 females, 1 male and 5 nymphs ex *Tadarida europs* (SVP 6591, 6593, 6594, 6605, 6608, 6637), T. F. Amazonas, Río Orinoco, Boca Mavaca 68 km SE Esmeralda, 185 m elev., 14-II-1966.

Hesperoctenes fumarius (Westwood)

VENEZUELAN AND OTHER RECORDS

See Table 1.

Table 1. Venezuelan Records of *Hesperoctenes fumarius* (Westwood)

HOST	LOCALITY AND DATE	FIELD NUMBERS	STAGE AND NUMBER
<i>Eumops trumbulli</i>	COLOMBIA: Meta, Pto. Hopez, XI-1966	6060	1F
<i>Eumops bonariensis</i>	BOLIVIA: Beni, San Joaquin, 7-VI-1963 (853), 8-IX-1963 (2505)	853, 2505	3FF, 1N
<i>Molossus ater</i>	VENEZUELA: Apure, 60 km NE Pto. Paez, Hato Cariben Río Cinaruco, XII-1965	SVP 5657, 5658, 5731 5736, 5750, 5776	1F 4MM, 4NN
	Monagas, 3 km N and 4 km W Caripe, San Agustín, VI-1967 (SVP 13728-13798) VII-1967 (SVP 13971-14104)	SVP 13719, 13721, 13723, 13726, 13730, 13738, 13748, 13751, 13753, 13762, 13770, 13774, 13776, 13793, 13798, 13971, 13972, 13973, 13975, 13976, 13978, 13979, 13999, 14002, 14003, 14004, 14008, 14040, 14048, 14053, 14055, 14104	24FF, 16MM, 25NN
	T. F. Amazonas, 68 km SE Esmeralda, Boca Mavaca 8-III-1967	SVP 16761	1F, 1N
	T. F. Amazonas, 5 km N San Juan W side Río Manapiare, 5-VII-1967	SVP 25432, 25433	2FF
	T. F. Amazonas, Lagoon Nr. Tamanaco, ca. 4 km NE San Juan, Manapiare, VII-1967	SVP 26703, 26704, 26705, 26706, 26748, 26748, 26479, 26752	2FF, 10MM, 5NN
	T. F. Amazonas huge lagoon extending to ca. 2 km N Tamanaco, N San Juan, Manapiare,	SVP 27302, 27307, 27749, 27806,	1F, 5MM,

Table 1 (continued).

	VII-1967	27822, 28380, 28772, 28800, 28806	5NN
<i>Molossus aztecus</i>	T. F. Amazonas, 68 km SE Esmeralda, Boca Mavaca, Rio Orinoco, 16-II-1966	SVP 6675, 6680, 6682, 6683	1F, 2MM, 1N
<i>Molossus bondae</i>	Yaracuy-Carababo border, 10 km NW Urama, Rio Yaracuy, III-1966	SVP 7149, 7300	2MM, 1N
<i>Molossus ater</i>	Bolivar, 59 km SE El Dorado, km 74, El Manaco, VI-1966	SVP 9129, 9510, 9892	1F, 3MM, 2NN
	Sucre, 14 km E Cumana, Hda. Guanital, XII-1966	SVP 11738, 11804, 11737	1F, 2MM
	T. F. Amazonas, Rio Cumucunuma, Belen, 7-I-1967	SVP 15580	1N
<i>Molossus aztecus</i>	T. F. Amazonas, huge lagoon extending to ca. 2 km N Tamanaco, N San Juan, Manapiare, 18-VII-1967	SVP 27348, 27747, 27748	2FF, 1M
<i>Molossus major</i>	Barinas, 2 km SW Altamira, La Vega del Rio Santo Domingo, 27-XII-1967	SVP 33796	1F
<i>Molossops planirostris</i>	T. F. Amazonas, huge lagoon extending to ca. 2 km N Tamanaco, N San Juan, Manapiare, VII-1967	SVP 27893, 27894, 28004, 28009, 28128, 28150, 28779	2FF, 5MM, 2NN
<i>Noctilio labialis</i>	T. F. Amazonas, lagoon nr. Tamanaco, ca. 4 km NE San Juan, Manapiare, 14-VII-1967	SVP 26708	1M
<i>Promops centralis</i>	Bolivar, 14 km S and 45 km E Caicara, Hato La Florida, 5-V-1967	SVP 12990	1F, 1M
<i>Rhynchonycteris naso</i>	T. F. Amazonas, Tamanaco, ca. 4 km NE San Juan, Manapiare, 18-VII-1967	SVP 27389	1M, 2NN
<i>Pteronotus parnellii</i>	Monagas, San Agustin, 3 km N and 4 km W Caripe, 1165 m elev., 26-V-1967	SVP 13718	1N

Hesperoctenes angustatus Ferris and Usinger

VENEZUELAN RECORDS

Fifteen females, 9 males, 4 nymphs ex *Eumops glaucinus*, T. F. Amazonas, Tamanaco, 6 km NE San Juan Manapiare, 155 m elev., 17-VII-1967 (SVP 26868, 26975, 26976, 26992, 26993, 26994, 26995, 27008, 27010, 27012) and 19-VII-1967 (SVP 27823, 27995, 28576).

Hesperoctenes sp.

VENEZUELAN RECORDS

Three females, 1 nymph ex *Artibeus fuliginosus* (SVP 27897); T. F. Amazonas, Rio Cumucunuma, Acanana, 145 m elev., VI-1967; 2 nymphs ex *Eumops glaucinus* (SVP 9512); Bolivar, 59 km SE El Dorado, 150 m elev., 17-VI-1966. (Note the first host should be regarded as a possible contamination and the second host is a field identification.)

HOST RELATIONSHIPS AND DISTRIBUTION

So far 16 species have been described in the genus *Hesperoctenes*. At present, the taxonomic status of *H. tarsalis*, from an unknown host in Nicaragua, is not clear, since no specimens of the species have been available. Following is a summary of the distribution and host relationships of each species of *Hesperoctenes*.

H. abalosi was described from *Promops*(?) sp. in Argentina. No further information was available.

H. angustatus was originally described from British Guiana, and subsequently the species

has been found on *Eumops glaucinus* in Panama and Venezuela.

H. cartus was originally known from *Tadarida gracilis* in Brazil. Subsequently the species was collected from *Molossops cerastes* (= *M. brachymeles*) in Paraguay and from *Molossops planirostris* in Colombia, Panama, and Venezuela.

H. chorate was only known from *Molossops* sp. in Argentina.

H. eumops has been found from *Eumops perotis* (= *E. californicus*) in southern California, USA.

H. fumarius is widely distributed in the cen-



Fig. 2. Distribution map of *Hesperoctenes* species.

tral and northern part of South America and West Indies. The known hosts of this species are as follows: *Molossus ater*, *M. aztecus*, *M. bondae*, *M. major*, *M. obscurus*, *M. pretiosus* (= *M. ater*), *M. tropidorhynchus*, *Molossops planirostris*, *Eumops bonariensis*, *E. trumbulli*, and *Promops centralis*. In addition to the hosts mentioned above, specimens of this species were collected from the bulldog bat, *Noctilio labialis* (Noctilionidae), and *Rhynchonycteris naso* (Emballonuridae) in Venezuela. I assume the association of *H. fumarius* with those bats is accidental. Walker (1964) stated that "*Noctilio* and *Molossus* are often found roosting in the same trees and buildings" and "*Noctilio labialis* has been found in the same hollow trees as *Molossus major*." From the above statement, I believe that polyctenids on *Molossus* move to *Noctilio* accidentally while they are roosting together.

H. giganteus was originally described from *Eumops* in Argentina, and no further information was available.

H. hermsi was collected from *Tadarida macrotis* (= *T. molossa*) in Texas (USA). As stated previously the specimens were collected from *Tadarida gracilis* in Venezuela. From this evidence, the species may be widely distributed in Central America and the northern part of

South America.

H. impressus is known from Brazil and Paraguay. The host of this species is probably *Molossops cerastes* (= *M. brachymeles*).

H. limai is known only from Brazil and there is no information concerning the host.

H. longiceps is known from *Molossus abrasus* (= *Eumops auripendulus*) in Guatemala and from *Eumops auripendulus* and *E. glaucinus* in Venezuela.

H. minor was originally described from *Tadarida* sp. in Argentina and no further collection was available.

H. parvulus is only known from *Glossophaga longirostris* (Phyllostomatidae) in Venezuela. The host association of the species is quite unusual. Further specimens and information on the host are badly needed.

H. setosus was originally recorded from *Tadarida* sp. (as *Nyctinomus*) in Venezuela. Many specimens were collected from *Tadarida gracilis* in Venezuela.

H. vicinus is known only from Paraguay and the probable host is *Molossus rufus* (= *M. ater*).

The distribution patterns of *Hesperoctenes* species are shown in Fig. 2.

Key to the Species of *Hesperoctenes*²

- 1. Head on underside with a patch or row of bristles at middle of hind margin 2
 Head on underside without bristles at middle of hind margin 8
- 2. Bristles on body very numerous and regularly placed, the pronotal disk with only a small hook-shaped bare area on either side of middle 3
 Bristles on body much sparser and more irregularly placed, pronotal disk with numerous bare areas 4
- 3. First segment of antennae as long as third segment. Hind margins of front femora more strongly rounded at the middle. Metasternum with a bare area on the anterior half at middle, size large. *Tadarida*. Texas (USA) and Venezuela *hermsi* Ferris and Usinger
 First antennal segment shorter than third. Posterior or outer margins of front femora more strongly rounded basally. Metasternum entirely setose. Size small. *Tadarida*. Venezuela *setosus* Jordan
- 4. Head below with an irregular double row of 10-14 bristles at middle of hind margin. *Molossops* and *Tadarida*. Brazil, Colombia, Venezuela, and Paraguay *cartus* Jordan
 Head below with an irregular double row of 6-8 bristles at middle of hind margin. 5
- 5. First antennal segment equal to third segment in length 6
 First antennal segment unequal to third segment in length 7
- 6. Labrum less than four times broader than long. *Molossus*. Paraguay *vicinus* Jordan
 Labrum more than four times broader than long. *Molossus*. Argentina *chorate* Ronderos

²A revision of Ferris and Usinger's 1939 and Ronderos' 1962 keys

7. Metapleurites with 6-7 bristles of irregular size. *Glossophaga* (?) Venezuela
 *parvulus* Ferris and Usinger
 Metapleurites with 8-11 long and stout bristles. *Tadarida*. Argentina *minor* Ronderos
8. Head at median line longer than broad at base 9
 Head at median line shorter than broad at base 12
9. Second antennal segment less than twice as long as first. Head scarcely longer
 than broad 10
 Second antennal segment twice or more as long as first. Head distinctly longer than
 broad 11
10. Second, third, and fourth antennal segments equal. Metapleurites with 6-9 very
 stout bristles in two or three ill-defined rows. *Eumops*. British Guiana, Panama,
 Venezuela *angustatus* Ferris and Usinger
 Second antennal segment longer than third or fourth. Metapleurites with a group
 of long bristles perpendicularly on median portion of coxal edge and a row of 9
 stout bristles. *Promops*(?) sp. Argentina *abalosi* Del Ponte
11. Second antennal segment more than twice as long as first. Labrum two and one-
 half times as wide as long at middle. Host unknown. Brazil *limai* Ferris and Usinger
 Second antennal segment twice as long as first. Labrum three times as wide as long
 at middle. *Eumops*. Guatemala, Venezuela *longiceps* (Waterhouse)
12. Head scarcely broader than long. Pronotum a little more than half again as long
 as broad 13
 Head distinctly broader than long. Pronotum almost twice as broad as long 14
13. Lateral margins of pronotum semiconvergent. Mesonotal lobes subquadrate. Front
 femur strongly curved at middle of posterior margin. *Eumops*. California (USA)
 *eumops* Ferris and Usinger
 Lateral margins of pronotum subparallel. Mesonotal lobes subtriangular. Front femur
 with posterior margin uniformly curved. *Eumops*. Argentina
 *giganteus* Ronderos
14. Metapleurites with 6-8 long bristles. Metasternum with bristles except at middle.
Molossus, *Eumops*, *Molossops*. Central and South America and West Indies
 *fumarius* (Westwood)
 Metapleurites with 10-12 bristles. Metasternum with bristles confined to the pos-
 terior and lateral margins. *Molossops*. Brazil, Paraguay *impressus* Horvath

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